

Attorney Docket No.: 2002B133/2

IN THE CLAIMS:

Please cancel claims 28, 31-32, 42 and 45-46 without prejudice; add new claims 53-58; and amend the claims as follows:

1. (Previously presented) A method of forming polyolefins, comprising:
mixing in a first vessel a catalyst slurry comprising a supported metallocene catalyst and a first oil, ~~wherein the first vessel includes a housing having an upper portion and a lower portion, the lower portion disposed proximate to a catalyst slurry outlet and having a proximal end nearest a catalyst slurry inlet and a distal end nearest the catalyst slurry outlet, the proximal end having a circumference that is greater than a circumference of the distal end;~~
providing a transport medium comprising a second oil;
combining a the transport medium comprising a second oil and the catalyst slurry to form a catalyst mixture;
transferring introducing the catalyst mixture to a polymerization reactor using one or more gear pumps; and
contacting olefin monomers with the catalyst mixture to polymerize the olefin monomers and form polyolefins.
2. (Currently amended) The method of claim 1, wherein the catalyst slurry is mixed in the first vessel to maintain the supported metallocene catalyst suspended in the first oil.
3. (Currently amended) The method of claim 1, wherein the first vessel includes a housing having an upper portion and a lower portion, the lower portion disposed proximate to a catalyst slurry outlet and having a proximal end nearest a catalyst slurry inlet and a distal end nearest the catalyst slurry outlet, the proximal end having a circumference that is greater than a circumference of the distal end.
4. (Previously presented) The method of claim 1, wherein the catalyst slurry is passed from the first vessel to a second vessel prior to combining the transport medium and the catalyst slurry, the second vessel having a substantially conical portion and a volume that

USSN: 10/668,723

5 of 15

2002B133-2-US-20070109-Response to 3rd Office Action.DOC

Attorney Docket No.: 2002B133/2

is smaller than the volume of the first vessel, the method further comprising passing the catalyst mixture through at least one meter configured to measure a catalyst addition rate.

5. (Previously presented) The method of claim 1, further comprising monitoring a catalyst addition rate, the monitoring a catalyst addition rate including disposing the catalyst slurry in a second vessel having a catalyst slurry inlet and a catalyst slurry outlet and measuring the level of catalyst slurry within the second vessel.
6. (Previously presented) The method of claim 1, wherein the supported metallocene catalyst comprises 25 wt% or less of the catalyst slurry mixture.
7. (Previously presented) The method of claim 1, wherein the supported metallocene catalyst has an activity of 3500 gPP/(gCat*hr) or more.
8. (Original) The method of claim 1, wherein the first oil and the second oil comprise mineral oil.
9. (Original) The method of claim 1, wherein the first oil and the second oil each have a kinematic viscosity of from 0.63 centistokes to 200 centistokes at 40°C.
10. (Canceled)
11. (Previously presented) The method of claim 1, wherein the second oil comprises 10 wt% or more of the combined catalyst mixture.
12. (Original) The method of claim 1, wherein the catalyst slurry comprises from 25 wt% to 5 wt% metallocene catalyst and from 75 wt% to 95 wt% first oil.
13. (Original) The method of claim 1, wherein the transport medium comprises 85 wt% or more second oil.

Attorney Docket No.: 2002B133/2

14. (Original) The method of claim 1, wherein the transport medium comprises 95 wt% or more second oil.
15. (Original) The method of claim 1, wherein the catalyst mixture comprises from 20 wt% to 80 wt% catalyst slurry and from 80 wt% to 20 wt% transport medium.
16. (Original) The method of claim 1, wherein combining the transport medium and the catalyst slurry to form a catalyst mixture provides a catalyst mixture with a lower viscosity than the viscosity of the catalyst slurry.
17. (Original) The method of claim 1, wherein the olefin monomers comprise propylene.
18. (Currently amended) A method of forming polypropylene, comprising:
 - providing a catalyst slurry consisting essentially of a supported metallocene catalyst and a first mineral oil having a kinematic viscosity of from about 0.63 centistokes to 200 centistokes at 40°C;
 - ~~mixing the catalyst slurry in a first vessel, the first vessel comprising a housing having an upper portion and a lower portion, the lower portion disposed proximate to a catalyst slurry outlet and having a proximal end nearest a catalyst slurry inlet and a distal end nearest the catalyst slurry outlet, the proximal end having a circumference that is greater than a circumference of the distal end;~~
 - ~~providing a transport medium consisting essentially of a second mineral oil;~~
 - combining a the transport medium consisting essentially of a second mineral oil
 - and the catalyst slurry to form a catalyst mixture;
 - ~~transferring~~ introducing the catalyst mixture to a polymerization reactor using one or more gear pumps; and
 - contacting propylene monomers with the catalyst mixture to polymerize the propylene monomers and form polypropylene.
19. (Currently amended) The method of claim 18, wherein the catalyst mixture comprises from 10 wt% to 90wt % catalyst slurry and from 90 wt% to 10 wt% transport medium mineral oil.

Attorney Docket No.: 2002B133/2

20. (Currently amended) The method of claim 18, wherein the catalyst mixture comprises from 20 wt% to 80 wt% catalyst slurry and from 80 wt% to 20 wt% ~~transport-medium~~ mineral oil.
21. (Currently amended) A method of forming polyolefins, comprising:
mixing in a first vessel a catalyst slurry comprising a supported metallocene catalyst and a first oil;
passing the catalyst slurry from the first vessel to a second vessel, the second vessel having a ~~substantially conical portion and a volume that is~~ smaller than the volume of the first vessel;
~~providing a transport medium comprising a second oil;~~
combining the ~~transport medium~~ a second oil and the catalyst slurry to form a catalyst mixture;
passing the catalyst mixture through at least one meter configured to measure a catalyst addition rate;
~~transferring~~ introducing the catalyst mixture from the second vessel to a polymerization reactor using one or more gear pumps; and
contacting olefin monomers with the catalyst mixture to polymerize the olefin monomers and form polyolefins.
22. (Previously presented) The method of claim 21, wherein the catalyst slurry is mixed in the first vessel to maintain the metallocene catalyst suspended in the first oil.
23. (Previously presented) The method of claim 21, further comprising measuring the level of catalyst slurry within the second vessel.
24. (Previously presented) The method of claim 21, wherein the metallocene catalyst comprises 25 wt% or less of the catalyst slurry mixture.
25. (Previously presented) The method of claim 21, wherein the catalyst has an activity of 3500 gPP/(gCat*hr) or more.

Attorney Docket No.: 2002B133/2

26. (Previously presented) The method of claim 21, wherein the first oil and the second oil comprise mineral oil.
27. (Previously presented) The method of claim 21, wherein the first oil and the second oil each have a kinematic viscosity of from 0.63 centistokes to 200 centistokes at 40°C.
28. (Canceled).
29. (Previously presented) The method of claim 21, wherein the second oil comprises 10 wt% or more of the combined catalyst mixture.
30. (Previously presented) The method of claim 21, wherein the catalyst slurry comprises from 25 wt% to 5 wt% metallocene catalyst and from 75 wt% to 95 wt% first oil.

Claims 31-32. (Canceled)

33. (Currently amended) The method of claim 21, wherein the catalyst mixture comprises from 20 wt% to 80 wt% catalyst slurry and from 80 wt% to 20 wt% ~~transport-medium~~ oil.
34. (Previously presented) The method of claim 21, wherein combining the ~~transport medium~~ second oil and the catalyst slurry to form a catalyst mixture provides a catalyst mixture with a lower viscosity than the viscosity of the catalyst slurry.
35. (Previously presented) The method of claim 21, wherein the olefin monomers comprise propylene.
36. (Currently amended) The method of claim 21, wherein the catalyst mixture comprises from 10 wt% to 90wt % catalyst slurry and from 90 wt% to 10 wt% ~~transport-medium~~ oil.

Attorney Docket No.: 2002B133/2

37. (Currently amended) A method of forming polyolefins, comprising:
- mixing in a first vessel a catalyst slurry comprising a supported metallocene catalyst and a first oil;
 - passing the catalyst slurry from the first vessel to a second vessel having a ~~catalyst slurry inlet and a catalyst slurry outlet, the second vessel having a substantially conical portion~~ volume smaller than the volume of the first vessel;
 - monitoring a catalyst addition rate by measuring the level of catalyst slurry within the second vessel;
 - ~~providing a transport medium comprising a second oil;~~
 - combining the ~~transport medium~~ a second oil and the catalyst slurry within one or more gear pumps to form a catalyst mixture within the gear pumps; and
 - ~~transferring~~ introducing the catalyst mixture to a slurry polymerization reactor and
 - ~~contacting olefin monomers with the catalyst mixture to polymerize the olefin monomers and form polyolefins.~~
38. (Previously presented) The method of claim 37, wherein the catalyst slurry is mixed in the first vessel to maintain the metallocene catalyst suspended in the first oil.
39. (Currently amended) The method of claim 37, wherein the catalyst slurry is passed from the first vessel to the second vessel prior to combining the ~~transport medium~~ second oil and the catalyst slurry, the second vessel having a volume that is smaller than the volume of the first vessel, the method further comprising passing the catalyst mixture through at least one meter configured to measure a catalyst addition rate.
40. (Previously presented) The method of claim 37, wherein the metallocene catalyst comprises 25 wt% or less of the catalyst slurry mixture.
41. (Previously presented) The method of claim 37, wherein the first oil and the second oil each have a kinematic viscosity of from 0.63 centistokes to 200 centistokes at 40°C.
42. (Canceled).

Attorney Docket No.: 2002B133/2

43. (Previously presented) The method of claim 37, wherein the second oil comprises 10 wt% or more of the combined catalyst mixture.

44. (Previously presented) The method of claim 37, wherein the catalyst slurry comprises from 25 wt% to 5 wt% metallocene catalyst and from 75 wt% to 95 wt% first oil.

Claims 45-46. (Canceled)

47. (Currently amended) The method of claim 37, wherein the catalyst mixture comprises from 20 wt% to 80 wt% catalyst slurry and from 80 wt% to 20 wt% ~~transport-medium~~ oil.

48. (Currently amended) The method of claim 37, wherein combining the ~~transport-medium~~ second oil and the catalyst slurry to form a catalyst mixture provides a catalyst mixture with a lower viscosity than the viscosity of the catalyst slurry.

49. (Previously presented) The method of claim 37, wherein the olefin monomers comprise propylene.

50. (Currently amended) The method of claim 37, wherein the catalyst mixture comprises from 10 wt% to 90wt % catalyst slurry and from 90 wt% to 10 wt% ~~transport-medium~~ oil.

51. (Previously presented) The method of claim 37, wherein the metallocene catalyst has an activity of 3500 gPP/(gCat*hr) or more.

52. (Previously presented) The method of claim 37, wherein the first oil and the second oil comprise mineral oil.

53. (New) The method of claim 1, wherein the transport medium is introduced into the one or more gear pumps.

USSN: 10/668,723

11 of 15

2002B133-2-US-20070109-Response to 3rd Office Action.DOC

Attorney Docket No.: 2002B133/2

54. (New) The method of claim 1, wherein the transport medium and catalyst slurry are combined in the one or more gear pumps to form the catalyst mixture.
55. (New) The method of claim 4, wherein the second vessel is used to meter the catalyst addition rate into the reactor.
56. (New) The method of claim 18, wherein the transport medium is introduced into the one or more gear pumps.
57. (New) The method of claim 18, wherein the transport medium and catalyst slurry are combined in the one or more gear pumps to form the catalyst mixture.
58. (New) The method of claim 21, wherein the second oil is introduced into the one or more gear pumps and combined with the catalyst slurry, forming the catalyst mixture within the one or more gear pumps.

USSN: 10/668,723

12 of 15

2002B133-2-US-20070109-Response to 3rd Office Action.DOC